FW05-012

Western Region Sustainable Agriculture Research and Education Farmer/Rancher Grant

Forage Winter Wheat Production for Grazing or Hay Production in Eight Montana Counties

Introduction: Many agricultural operations in Montana consist of integrated crop and livestock enterprises (primarily small grains and cow-calf). On these ranches, efficient forage production and use is key for winter feed programs and long-term economic stability. Alfalfa and alfalfa-grass mixes are widely grown on over 2 million acres in Montana. Annual forages such as hay barley, sorghum sudangrass and millet are also important hay sources, both as emergency roughages during drought and as rotation crops when alfalfa or perennial pastures are renovated. The use of these crops has increased; since 2000, cereal hay was harvested on about 300,000 acres in Montana, valued at $34.5 million annually. Hay barley, such as 'Haybet', accounts for most of the cereal hay, but many producers are interested in winter cereals.

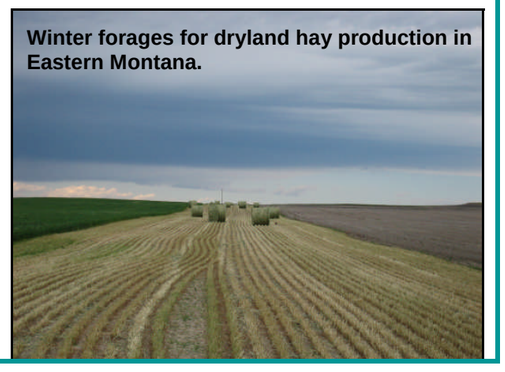
Project Objective: This project examined the agronomic characteristics of 'Willow Creek' awnless forage winter wheat that will be available in limited supplies for planting in 2007. The project allowed producers across the State of Montana (**map 1**) to look at grazing potential and hay production of this variety and decide how it will fit in their specific environments. Producers and technical advisors were able to increase awareness in the agriculture community of winter forage enterprises and Sustainable Agriculture Research and Education (SARE) project funding.

In 2005, 11 on-farm demonstration strips (1-10 acres) of 'Willow Creek' awnless winter wheat and triticale were evaluated across Montana. There were 8 cooperating producers and 14 county agents and MSU faculty involved. The wheat was planted in fall 2004 under typical practices.

The forages were sampled May 23, June 7 and June 21 to determine forage production and quality, and hay samples from most fields were collected. Hay and silage harvested at the E.L. Peterson Ranch was used for a 45-day backgrounding trial, similar research trials were completed at MSU in Bozeman and NDSU in Hettinger, North Dakota.

County Agent Eric Miller supervises while producer Vern Pluhar does the work. June 7, 2005.

County Agent Ron Carlstrom, producer George Reich and Dr. Dennis Cash discuss the irrigated field trial.



Winter forages for dryland hay production in Eastern Montana.

E.L. Peterson Ranch Feeding Trial
Dean Peterson in cooperation with D Cash & L Surber – Department of Animal and Range Sciences, Montana State University

Group	Pen	Calves	Cost/Day	Gain/Day	Cost of Gain
2	5 silage	45 head	$1.26	1.94 lbs	$0.649
3	4 Windrift	45 head	$1.02	2.02 lbs	$0.505
4	3 Willow Creek	45 head	$1.13	2.57 lbs	$0.43
5	2 Koldtana	45 head	$1.18	2.33 lbs	$0.506
1	6	61 light calves	$0.99	2.0 lbs	$0.495

Rations included ranch-grown forages plus purchased wheat mids fed at the E.L. Peterson Feedlot, Judith Gap, MT. Similar research trials were completed in research facilities at MSU- Bozeman, MT and NDSU-Hettinger, ND

Field Day at E.L. Peterson Ranch Judith Gap, Montana

Cattle prefer hay made from 'Haybet' spring barley, 'Willow Creek' forage winter wheat, 'Koldtana' winter triticale, in that order.—FWW Producer

In 2005 and early 2006, fourteen workshops and field demonstrations were conducted reaching 759 producers.

***Winter forages will complement spring planted forages for hay production. We see the value of increase yields, earlier harvest dates and spreading the workload to fall and spring for planting, using winter forages—* Producer**

Surveys, following workshops and field days, show that if seed had been available at planting time in the fall of 2005, 102 producers would have been interested in seeding 9,100 acres of 'Willow Creek' awnless forage winter wheat.

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Dennis Cash (406) 994-5688 or email dcash@montana.edu

This project was funded in part by Western Sustainable Agriculture Research and Education, WSARE, with a Farmer/Rancher grant—George Reich, Producer Leader, Willow Creek, Montana.

Feeding trials were funded by the Four State Ruminant Consortium. Contact Lisa Surber for more information at lmsurber@montana.edu or (406) 994-6787.

Judith Basin County - Central Ag Research Center—
Research Center Superintendent Dave Wichman, County Agent Wes Gibbs
1A strips of Willow Creek Forage Winter Wheat (WCFWW) vs. Koldtana triticale

	Growth Stage		Crop Height (in.)		Forage DM (tons/A)	
Date	WCFWW	Koldtana	WCFWW	Koldtana	WCFWW	Koldtana
05/25/2005	veg.	veg.	13	14	0.15	0.15
06/07/2005	Boot	Boot	18	29	0.41	0.48
06/23/2005	Headed	Water	28	30	1.02	1.59

Judith Basin County - Hobson—County Agent Wes Gibbs, Basin Angus Ranch
5A strips of Willow Creek Forage Winter Wheat (WCFWW) vs. Big Sky WW/Laurel triticale (BS/L)

	Growth Stage		Crop Height (in.)		Forage DM (tons/A)	
Date	WCFWW	BS/L	WCFWW	BS/L	WCFWW	BS/L
05/25/2005	veg.	veg.	19	21	0.53	0.57
06/07/2005	Boot	Boot	19	25	0.82	1.37
06/21/2005	Headed	Water	31	48	1.93	2.68

Granite County—County Agent Dan Lucas

Due to weather constraints in 2004 the plots were not seeded until the fall of 2005. Plots will be evaluated in the summer of 2006.

Hill County - NARC - Research Associate Peggy Lamb, County Agent Joe Broesder
5A strips of Willow Creek Forage Winter Wheat (WCFWW) vs. Koldtana triticale

	Growth Stage		Crop Height (in.)		Forage DM (tons/A)	
Date	WCFWW	Koldtana	WCFWW	Koldtana	WCFWW	Koldtana
05/24/2005	veg.	veg.	23	22	1.14	1.12
06/07/2005	Boot	Boot	33	31	2.18	1.93
06/21/2005	Anth	Anth	51	40	4.08	3.51
06/27/2005	Water	Water	55	41	4.49	3.97

Ravalli County—County Agent Rob Johnson, Steve Kaufman

	Growth Stage	Crop Height (in.)	Forage DM (tons/A)
Date	WCFWW	WCFWW	WCFWW
05/24/2005	veg.	13	0.23
06/09/2005	Boot	20	0.41
06/21/2005	Headed	35	1.9

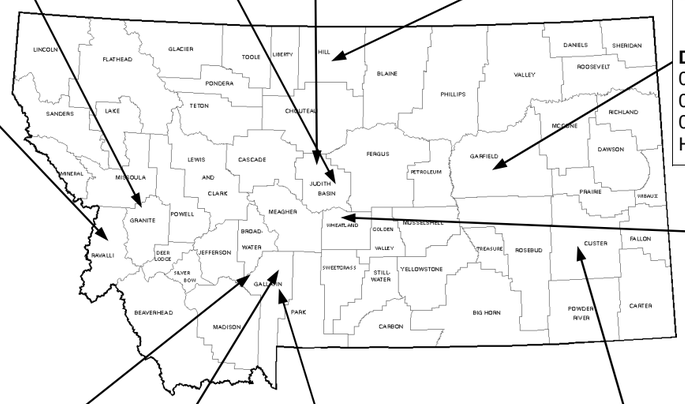
This field was direct seeded following a Roundup application into a old bromegrass-alfalfa stand .

Garfield County—County Agent Eric Miller, Vern Pluhar
10A Willow Creek Forage Winter Wheat (WCFWW) vs. Tiber winter wheat and Koldtana triticale

	Growth Stage			Crop Height (in.)			Forage DM (tons/A)		
Date	WCFWW	Tiber	Koldtana	WCFWW	Tiber	Koldtana	WCFWW	Tiber	Koldtana
05/23/2005	veg.	veg.	veg.	-	-	-	0.31	0.40	0.59
06/07/2005	Boot	Boot	Boot	28	27	28	1.34	1.88	2.08
06/20/2005	Headed	Headed	Headed	40	41	37	1.74	2.39	2.67
Hay	-	-	-	-	-	-	3.29	2.48	2.65

Wheatland County - Judith Gap—County Agent Mandie Reed, Dean Peterson
7A Willow Creek Forage Winter Wheat vs. Koldtana and Frostat triticale

	Growth Stage			Crop Height (in.)			Forage DM (tons/A)		
Date	WCFWW	Koldtana	Frostat	WCFWW	Koldtana	Frostat	WCFWW	Koldtana	Frostat
05/24/2005	veg.	veg.	veg.	13	15	-	0.36	0.34	-
06/07/2005	Boot	Boot	Boot	26	24	-	0.76	1.59	-
06/21/2005	Headed	Headed	Headed	44	34	43	2.50	2.00	2.47



Gallatin County - Willow Creek, Irrigated—County Agent Ron Carlstrom, Mark Cooper
10A Willow Creek Forage Winter Wheat (WCFWW) vs. Koldtana triticale

	Growth Stage		Crop Height (in.)		Forage DM (tons/A)	
Date	WCFWW	Koldtana	WCFWW	Koldtana	WCFWW	Koldtana
05/23/2005	veg.	veg.	-	-	0.85	1.16
06/09/2005	Boot	Boot	34	31	2.07	2.01
06/20/2005	Headed	Headed	47	38	3.03	3.59

Gallatin County - Willow Creek, Dryland—County Agent Ron Carlstrom, Reich Brothers
10A Willow Creek Forage Winter Wheat (WCFWW)

	Growth Stage		Crop Height (in.)		Forage DM (tons/A)	
Date	WCFWW	-	WCFWW	-	WCFWW	-
05/23/2005	veg.	-	-	-	0.21	-
06/06/2005	Boot	-	21	-	1.14	-
06/20/2005	Headed	-	38	-	1.96	-

Custer County—County Agent Kent Williams, Mark Helland
10A Willow Creek Forage Winter Wheat (WCFWW) vs. Morgan winter wheat

	Growth Stage		Crop Height (in.)		Forage DM (tons/A)	
Date	WCFWW	Morgan	WCFWW	Morgan	WCFWW	Morgan
05/24/2005	veg.	veg.	-	-	0.39	0.36
06/08/2005	Boot	Boot	24	-	0.94	-
06/21/2005	Headed	Headed	39	36	2.48	2.74

Gallatin County - North of Belgrade—County Agent Ron Carlstrom, Robert S. Miller
10A Willow Creek Forage Winter Wheat (WCFWW)

	Growth Stage		Crop Height (in.)		Forage DM (tons/A)	
Date	WCFWW	-	WCFWW	-	WCFWW	-
05/23/2005	veg.	-	-	-	0.51	-
06/06/2005	Boot	-	24	-	1.16	-
06/20/2005	Headed	-	33	-	2.96	-

Gallatin County - MSU Towne Farm, Bozeman—Extension Agronomist Dennis Cash
Replicated plots of Willow Creek Forage Winter Wheat (WCFWW) vs. Frostat triticale

	Growth Stage		Crop Height (in.)		Forage DM (tons/A)	
Date	WCFWW	Frostat	WCFWW	Frostat	WCFWW	Frostat
05/24/2005	veg.	veg.	21	28	0.72	0.80
06/06/2005	Boot	Boot	29	36	1.25	1.80
06/20/2005	Headed	Headed	38	50	3.15	3.04

All Averages:

Days after 01-Jan	Plant Height WCFWW	Plant Height other	DMY WCFWW	DMY other
145	17.8	20	0.52	0.61
158	25	29	1.21	1.58
172	38.4	40.4	2.49	2.69